PhytoKeys

PhytoKeys 230: 257–269 (2023)
DOI: 10.3897/phytokeys.230.107398

Research Article

A new species of *Schlegelia* (Schlegeliaceae) from wet montane forest of Colombia and a key for the species of the genus

Gerardo A. Aymard Corredor[1,2], M. Alejandra Jaramillo[3]

1 *UNELLEZ-Guanare, Programa de Ciencias del Agro y el Mar, Herbario Universitario (PORT), Mesa de Cavacas, estado Portuguesa 3350, Venezuela*
2 *Compensation International Progress S.A. C.I. Progress-Greenlife, Bogotá, D.C., Colombia*
3 *Grupo Diversitas, Facultad de Ciencias Básicas y Aplicadas, Universidad Militar Nueva Granada, km 2 vía Cajicá-Zipaquirá, Cundinamarca, Colombia*
Corresponding authors: Gerardo A. Aymard Corredor (cuyuni24@hotmail.com); M. Alejandra Jaramillo (maria.jaramillo@unimilitar.edu.co)

Abstract

In this paper we describe and illustrate *Schlegelia longirachis* a new species from montane forest remnants (1200–1900 m) in the Western slope of the Eastern Cordillera of Colombia ("Serranía de Las Quinchas" and Virolín county) in the Departments of Boyacá and Santander. A root-climbing liana, the new species is contrasted to *S. fuscata*, *S. monachinoi* and *S. parviflora*, the three most morphologically similar species of *Schlegelia*. This new species is differentiated from its putative close relatives by vegetative (texture, colour, pubescence and shape in leaves, bracts, bracteoles pedicel, calyx and corolla), inflorescences as well as floral characters (staminode absent). We provide an updated key to 24 known species of *Schlegelia*. For the identification key, *S. fuscata* and *S. roseiflora* are regarded here as different from *S. parviflora*. *S. urbaniana* is considered a synonym of *S. axillaris*, whereas *S. fastigiata* is separated from *S. sulphurea* as a recognizable species. *Schlegelia* has its center of distribution in Colombia, where 17 of the species are known to occur.

Resumen

En este artículo se describe e ilustra *Schlegelia longirachis* una nueva especie de los remanentes de bosques montanos húmedos (1200–1900 m) localizados en la vertiente occidental de la Cordillera Oriental de Colombia, en la Serranía de Las Quinchas y corregimiento de Virolín, en los departamentos de Boyacá y Santander (respectivamente). Esta nueva especie es una liana trepadora por raíces, la cual comparte varias similaridades con *S. fuscata*, *S. monachinoi* y *S. parviflora*. Sin embargo, difiere de estas especies en la textura, colores, pubescencia, forma de las hojas, brácteas, bractéolas, pedicelo, cáliz y corola, en el tipo de inflorescencia y por la ausencia del estaminodio. Se presenta una clave actualizada para diferenciar las especies del género *Schlegelia*. Para la clave, en un contexto geográfico y taxonómico, *S. fuscata* y *S. roseiflora* son tratadas como especies diferentes de *S. parviflora*. Por otra parte, *S. urbaniana* es considerada un sinónimo de *S. axillaris* y *S. fastigiata* es separada de *S. sulphurea*, y es reconocida como una especie válida. La presente contribución incrementa a 24 las especies de *Schlegelia*, 17 de éstas se conocen en Colombia, el país con la mayor diversidad del género.

Key words: Climbing plants, Flora of Colombia, Lamiales, lianas, montane wet forests, Serranía de Las Quinchas, Virolín

Palabras clave: plantas trepadoras, Flora de Colombia, Lamiales, lianas, bosques húmedos montanos, Serranía de Las Quinchas, Virolín

OPEN ACCESS

Academic editor: Eberhard Fischer
Received: 2 June 2023
Accepted: 2 August 2023
Published: 11 August 2023

Citation: Aymard Corredor GA, Jaramillo MA (2023) A new species of *Schlegelia* (Schlegeliaceae) from wet montane forest of Colombia and a key for the species of the genus. PhytoKeys 230: 257–269. https://doi.org/10.3897/phytokeys.230.107398

Copyright: © Gerardo A. Aymard Corredor & M. Alejandra Jaramillo.
This is an open access article distributed under terms of the Creative Commons Attribution License (Attribution 4.0 International – CC BY 4.0).

Introduction

Schlegelia comprises 24 species (including the new species described herein), as presently circumscribed in the key provided here. The genus occurs from the states of Chiapas, Oaxaca and Veracruz in Mexico (i.e., *S. nicaraguensis* Standl.; *sensu* Villaseñor Ríos 2016), the Antilles (i.e., *S. parasitica* (Sw.) Miers ex Griseb.), Central America, the Chocó Region, and Northern South America from the Guayana Shield to the Amazonia of Brazil, Colombia, Peru and Venezuela; at elevations from sea level to 2100 m (Gentry 1973, 1977, 1982a, 1982b, 1997, 2001, 2009). The genus is recognized by its conspicuous climbing habit, which consists of lianas climbing by adventitious roots, without tendrils (Gentry 1973, 1980). Its leaves are simple, with axillary pseudostipules (prophylls). The inflorescences are axillary racemes or terminal thyrses. Calyces are cupular or irregularly lobed. Corollas are tubular, tubular-campanulate infundibuliform-campanulate or hypocrateriform-campanulate. Petals are white, pink, red, yellow, or purple. Ovaries have an incompletely bilocular placenta. The fruit is a globose berry, up to 5 cm diam., with a persistent calyx (Gentry 1980, 2009).

Schlegelia was described from a collection made by Hendrick C. Focke, a Dutch Guianan lawyer, botanist, and ethnologist, who made numerous plant collections in Suriname between 1835–1850 (Pulle 1906). He sent his collections to Freidrich A. W. Miquel, who described the genus along with *S. lilacina* Miquel [= S. violacea (Aubl.) Griseb.; Miquel, 1844]. From its inception the relationships of *Schlegelia* were not clear; Miquel described the genus under the tribe Crescentiaeae as conceived by Endlicher (1839). Crescentieae was considered part of Gesneriaceae by Endlicher and consequently Miquel. However, Don, De Candolle, Martius and Fenzl considered Crescentieae part of Bignoniaceae (Miquel 1844).

Schlegelia, currently belongs into its own family, the Schlegeliaceae Reveal (1995: 74–75), a Neotropical family that includes four genera, two of them monotypic: *Exarata* Gentry (*E. chocoensis* A. H. Gentry), from the Chocó Region, and *Synapsis* Griseb. (*S. ilicifolia* Griseb.) from Cuba; and two relatively larger genera *Gibsoniothamnus* L.O.Williams (ca. 10 species) distributed in Mesoamerica and the Antilles, and *Schlegelia* Miq. (1844: 785). Before Schlegeliaceae was considered as a formal family by Reveal (1995), A. H. Gentry had proposed a new tribe Schlegelieae Gentry of the Bignoniaceae (Gentry 1980). The tribe was suggested as it was difficult to place these genera within Bignoniaceae or Scrophulariaceae (Gentry 1980; Armstrong 1985). Phylogenetic analyses confirmed Schlegeliaceae as monophyletic and distinct from Bignoniaceae and Scrophulariaceae (Spangler and Olmstead 1999; Olmstead et al. 2009). The most recent phylogenetic reconstruction based on chloroplast and nuclear genes place Schlegeliaceae (a) sister to Martyniaceae and Thomandersiaceae (BS<90, Liu et al. 2020); (b) sister to a clade including Pedaliaceae, Lentibulariaceae, Acanthaceae, Bignoniaceae and Verbenaceae (BS=98, 80 cp genes, Fonseca 2021); or (c) sister to Bignoniaceae and Verbenaceae (BS=65, 410 nuclear genes, Fonseca 2021). The relationship of Schlegeliaceae to other families of Lamiales is still not well understood; a better sampling of the family within molecular phylogenetic analyses should shed some light on the placement of Schlegeliaceae within this diverse order.

No comprehensive monograph of *Schlegelia* has been completed to date, although the genus has been treated largely as part of Bignoniaceae for Flora of Panama (Gentry 1973), Flora of Ecuador (Gentry 1977), Flora de Venezuela (Gentry 1982a), Flora de Veracruz (Gentry 1982b), Flora of the Venezuelan Guayana (Gentry 1997), Flora of Costa Rica (Burger and Barringer 2000), Flora de Nicaragua (Gentry 2001), Flora de Colombia (Gentry 2009) and Manual de Plantas de Costa Rica (Morales 2015). In addition, the genus has been treated in: Checklist of the plants of the Guiana Shield (Funk et al. 2007), Catálogo de las plantas vasculares nativas de México (Villaseñor Ríos 2016), Catalogue of seed plants of the West Indies (Acevedo-Rodriguez and Strong 2023), and Catálogo de plantas y líquenes de Colombia (Gradstein 2016).

The present work describes and illustrates a new species of *Schlegelia*, found in an isolated population located in highly fragmented montane forest. This new species was detected during the academic fieldwork conducted by "Herbario de la Universidad Militar Nueva Granada" (UMNG-H). Currently, the distribution of this new species is known only from "Serranía de Las Quinchas" and "Virolín" region, in Municipalities of Otanche and Charalá, Boyacá and Santander departments. Further botanical explorations of the area and the nearby municipalities are expected to uncover additional populations of this species as they share similar habitats. The present contribution increases to 24 the number of *Schlegelia* species, 17 of them known from Colombia, the country with the highest diversity of the genus.

Materials and methods

We examined 120 herbarium specimens of *Schlegelia* from South America deposited at "Herbario de la Universidad Nacional de Colombia" (COL). In addition, all type specimens, as well as general collections, hosted by virtual herbaria, were consulted, including those maintained by the Field Museum (F; http://emuweb.fieldmuseum.org/botany/taxonomic.php), Instituto Nacional de Pesquisas da Amazônia (INPA; http://inct.florabrasil.net/en/), JSTOR Global Plants (http://plants.jstor.org), Museum of Natural History, Paris (P; http://www.mnhn.fr), Reflora Virtual Herbarium (http://reflora.jbrj.gov.br/reflora/), speciesLink (https://specieslink.net/), Smithsonian Institution (US; https://collections.si.edu/search/), Universidad de Antioquia, Colombia (HUA; http://www2.udea.edu.co/herbario/paginas/consultas/consultarEjemplares.iface), Universidad Nacional Autónoma de México (MEXU; https://datosabiertos.unam.mx/biodiversidad/), and the National Herbarium of The Netherlands (U; https://www.nationaalherbarium.nl/). The herbarium codes after Thiers (2019).

This publication is based on morphological assessments of herbaria collections. The description of the new species is based on field observations (flower and fruit material was preserved in ethanol) as well as on herbaria specimens. The flowers from herbaria specimens were rehydrated for three days before measuring using a 1:1 combination of glycerin and 0.9 NaCl solution.

Plants of the World (POWO, https://powo.science.kew.org) and taxonomic literature on *Schlegelia* were consulted to assemble the species key; in particular, Bignoniaceae for Flora of Panama (Gentry 1973), Flora of Ecuador (Gentry 1977), Flora of Venezuela (Gentry 1982a), Flora of Venezuelan Guayana (Gentry 1997) and Flora of Colombia (Gentry 2009). The Catálogo de plantas

y líquenes de Colombia (Gradstein 2016) was also reviewed. Additionally, the International Plant Names Index (https://www.ipni.org/), the online botany collections of the Smithsonian National Museum of Natural History (https://naturalhistory.si.edu/research/botany), and Tropicos (http://legacy.tropicos.org/Home.aspx) were consulted to update the current nomenclature and geographical information. Terminology for vegetative characters, inflorescences, flowers, and fruit morphology follow Gentry (1977, 2009) and Font-Quer (2001).

To determine the conservation status (according to IUCN categories and criteria; IUCN Standards and Petitions Committee 2022), the extent of occurrence (EOO) and area of occupancy (AOO) were calculated using the supporting Red List threat assessments with GeoCAT (Bachman et al. 2011), which is continually updated (https://geocat.kew.org/). The EOO is defined by the IUCN Standards and Petitions Committee (2022) as the minimum convex polygon encompassing all known occurrences of a species. In addition, AOO is the area within the EOO, which is comprised of 2 × 2 km grid cells containing known occurrences records.

Taxonomic treatment

***Schlegelia longirachis* Aymard & M.A.Jaram., sp. nov.**
urn:lsid:ipni.org:names:77325154-1

Type. Colombia. Boyacá. Municipio Otanche. Serranía de Las Quinchas, sector la Y, Finca Lote Terreno, 5°41'42.6"N, 74°19'37.5"W, 1200 m, 26 Oct 2022 (fl, fr). *M. Alejandra Jaramillo*, *Andrés F. Majin-Ladino*, *Lucindo Galvis & estudiantes de Taxonomía vegetal 2022-1*. (Holotype: COL!; Isotypes: UMNG-H!, HUA!). Figs 1, 2.

Schlegelia longirachis resembles *S. monachinoi*, but can be differentiated from this species by the longer internodes, 4–8cm long in *S.longirachis*, vs. 1.5–4.5cm in *S. monachinoi*. The leaf blades densely black punctuated on the adaxial surface, vs. sparsely punctuated towards the base of the blade on both surfaces in *S. monachinoi*. The inflorescences are longer 4–18 cm long in *S. longirachis*, vs. 3–11 cm in *S. monachinoi*. Bracts are oblong vs. lanceo-late-triangular in *S. monachinoi*.

Description. ***Root-climbing liana*** internodes 4–8 cm long, ca. 3cm in diameter, pale brown when dry, branches sparsely lenticelate. ***Leaves*** simple, opposite; petioles 12–20 mm long, glabrous; leaf blade lanceolate, lanceolate-elliptic, rarely oblanceolate, 4–22 × (3.2) 4.5–9 cm; coriaceous, densely black punctuated on the adaxial surface (Fig. 1C), glabrescent or with simple trichomes located near base and in the midrib on the abaxial surface (Fig. 1B), base obtuse-rounded or cuneate, apex rounded or acute, margins entire, black-brown upon drying; venation brochidodromous, midrib prominent on the abaxial surface, 6–7 pairs of secondary veins, the tertiary veins conspicuously reticulate on the abaxial surface. ***Inflorescence*** axillary, narrowly thyrsic with dichasial partial inflorescences; rachis puberulous to sparsely adpressed pubescent (5–12 cm long in flower, 12–18 cm long in fruit); flowers 14–20, produced in long-peduncled, 2–3-flowered dichasia along the rachis, each flower subtended by a bract and 2 bracteoles (Fig.

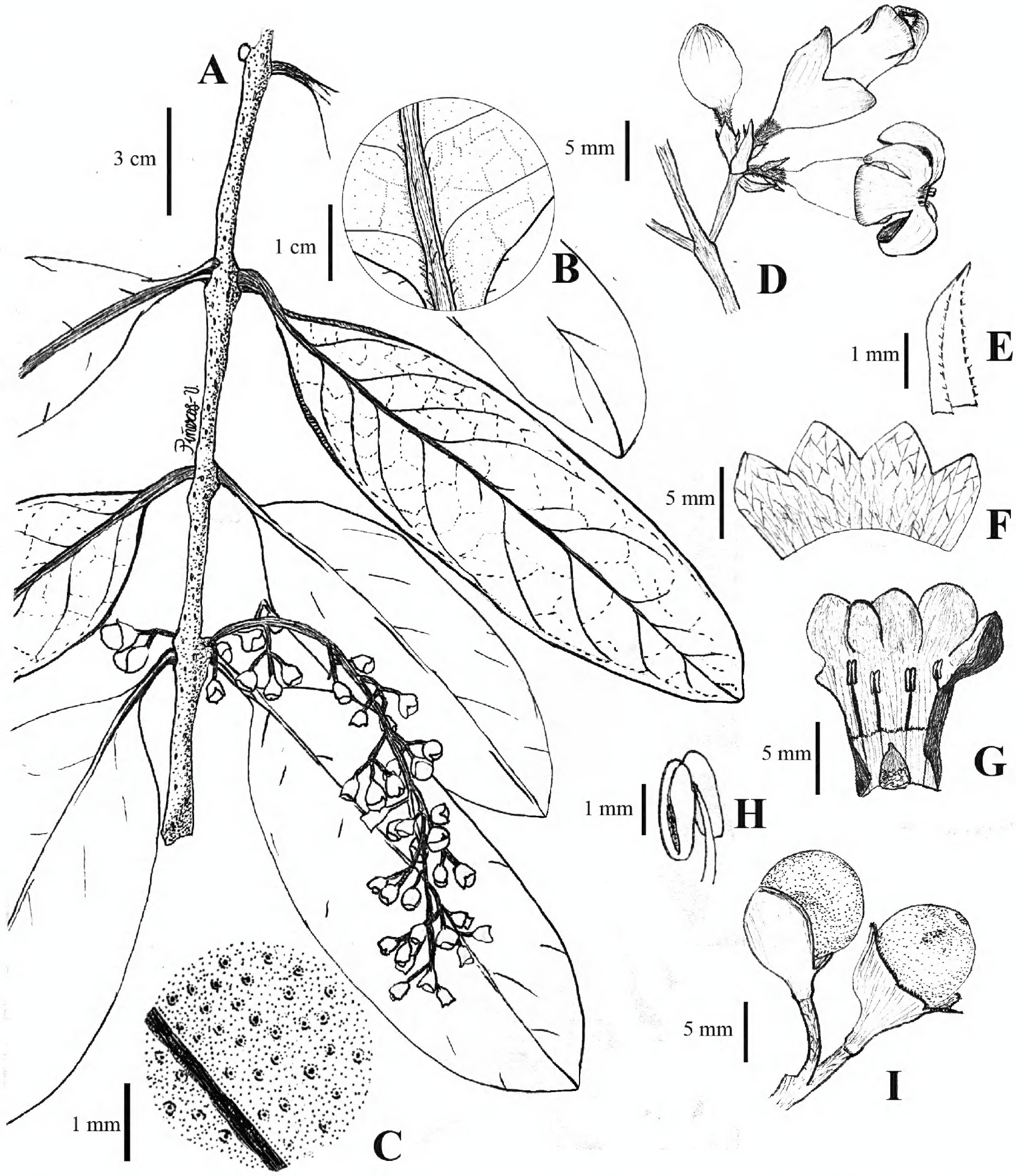

Figure 1. *Schlegelia longirachis* **A** a flowering branch **B** detail of the leaf abaxial surface **C** detail of the leaf adaxial surface showing the black punctations **D** inflorescence showing the bract and bracteoles **E** bract **F** calyx extended **G** corolla and adnate stamens extended **H** detail of a stamen **I** fruits. Illustration by Paola Piñeros.

1D), bracts 2–3 mm long, oblong, glabrous, ciliate at the margins; bracteoles ca. 1 mm long, triangular, ciliate at the margins; pedicels 3.5–4.5 mm in flower, 7.5–8.5 in fruit, adpressed pilose. ***Calyx*** cupular ca. 6 × 5 mm, bilabiate fused, 4-lobed, lobes oblong, 2–2.5 (3.2) mm long, apex rounded-acute, white, sparsely puberulent and with white disk-shape glands on the outer surface (visible in dry collections), glabrous and reticulate veined inside. ***Corolla*** campanulate-hypocrateriform with 5 reflexed lobes, white, deep pink at

Figure 2. *Schlegelia longirachis* **A** a flowering branch **B** detail of the inflorescence. Photos by Andrés Majín.

the throat (Fig. 2B); tube 7–8 mm long, ca. 4 mm wide in the mouth; lobes 3–4 × 3 mm, glabrous inside, minutely puberulous outside. ***Stamens*** didynamous (Fig. 1H), subexserted, filament 3–4 mm long, pilose at the base, inserted at ca. 4 mm from base of corolla; anthers ca. 1.5 mm long, oblong, glabrous; staminode absent. ***Pistil*** with conical ovary, ca. 1.5 × 1.5 mm, glabrous; nectariferous disk fused and not clearly differentiated from the ovary base. ***Fruit*** a berry, 6.6–8 mm in diam., spherical, drying black, glabrous with conspicuous papillae, covered to the middle by a persistent calyx (Fig. 1I, 2B). **Seeds** not seen.

Phenology. Collected in flower in March, and in flower and fruit in October.

Etymology. The specific epithet refers to the long rachis of the inflorescences that is present in this new species. The long rachis of *S. longirachis* displays the flowers away from the foliage, a characteristic that may have some bearing on the pollination strategy of the species.

Distribution and habitat. The species is known to occur in montane forest remnants between 1200 and 1900 m. In the type locality, *S. longirachis* grows in forest consisting of medium to tall trees.

Conservation status. This species is known only from the type and two additional localities; however, it is reported here as a very rare species. It should be regarded as Endangered (EN) due to the low number of known localities, its estimated Area of Occupancy (AOO) of 12,000 km^2, and its estimated Extent of Occurrence (EOO) of 755,768 km^2 (IUCN Standards and Petitions Committee 2022). Additionally, the conservation of these forests is at risk due the continuous deforestation and degradation of the "Serranía de Las Quinchas" and their surrounding areas on middle Magdalena river, and the Virolín Region (Galindo-T. et al. 2003) especially in the years during the pre- and post-conflict period (peace agreement was signed in 2017). The expansion of deforestation, degradation and water pollution continues (Salgado et al. 2022), with significantly greater agricultural use, pasture, selective logging, illicit crops and mining (Restrepo et al. 2021). Although

conservation status assessments can be made for species with such small numbers of collections (Rivers et al. 2011), it may be difficult to assess whether the appearance of rarity in a species is due to the lack of, or outdated, data, or to its actual rarity (Verspagen and Erkens 2022). Fortunately, the area where *S. longirachis* occurs is protected as part of the Regional Natural Park Serranía de las Quinchas (Stiles and Bohórquez 2000; Bohorquez-Osorio et al. 2020) and Fauna and Flora Santuary Guanentá-Alto Rio Fonce (Galindo-T. et al. 2003).

Additional specimens. COLOMBIA. Santander. Municipio de Charalá. Corregimiento de Virolín. Vereda El Reloj, Camino a Olival, aprox. 6°08'N, 73°20'W, 1680–1700 m, 03 Mar 1981, *S. Díaz Piedrahita 2273* (COL); Municipio de Charalá, Virolín, Vereda Palmar, 6°03'44.8"N, 73°12'50.4"W, 1894 m, 06 Oct 2009, *M. Blanco et al. 53* (COL).

Notes. The species described here is morphologically similar to three taxa *S. fuscata* A. H. Gentry *S. monachinoi* Moldenke and *S. parviflora* as characterized in Table 1. However, it is most similar to *S. monachinoi* from the Andean wet forests in Colombia, Ecuador and Venezuela (Gentry 1977, 1982a, 2009). Both species have elongate, narrow axillary thyrses, the corolla and lobes lilac inside and fruit 0.5–2.5 cm in diam. *S. longirachis* differs from *S. monachinoi* in the characters presented in diagnosis. The new species can be distinguished with the key to the species presented below.

Table 1. Comparison of diagnostic morphological characters of *Schlegelia longirachis*, with morphologically similar species. [1]In the *S. monachinoi* description, H. Moldenke mentioned that the bract is lanceolate, 2–5 mm long (Moldenke 1949). However, Gentry (2009) quoted that the bract is triangular, 1–2 mm long. Our examination of the type material deposited in COL confirmed the Gentry´s observation.

Character	*S. longirachis*	*S. fuscata*	*S. monachinoi*	*S. parviflora*
Leaves	3–9 cm wide, lanceolate, lanceolate-elliptic, rarely oblanceolate, coriaceous, with simples trichomes on the abaxial surface, black-brown when dry, base obtuse-rounded or cuneate	5–12 cm wide, widely-elliptic to elliptic, oblanceolate, rigid-coriaceous, with lepidote trichomes and disk-shape glands located near base of midrib on the abaxial surface, brown when dry, base truncate or widely-cuneate	5–11 cm wide, elliptic, oblanceolate, rarely narrowly ovate, rigid-coriaceous, with lepidote trichomes and disk-shape glands located near base of midrib on the abaxial surface, yellowish when dry, base acute	4.5–15 cm wide, obovate or elliptic-obovate, coriaceous, glabrescent or with lepidote trichomes and disk-shape glands located near base of midrib on the abaxial surface, olive green or brown when dry, base cuneate
Inflorescences	4–18 cm long, elongate, racemose to narrowly paniculate, puberulent or glabrous	1–(4)–5 cm long, shorter, racemose or narrowly subpaniculate, inconspicuous puberulent	4–15 cm long, elongate, racemose to narrowly paniculate, densely hirsute-puberulent (with lax trichomes)	2–5 cm long, shorter, contracted panicle, almost often fasciculate, glabrous to inconspicuous puberulent
Bract	2–3 mm long, oblong, sparsely puberulent outside, ciliate at the margins	2–5 mm long, lanceolate, glabrous on both sides, ciliate at the margins	1–2 mm long, triangular[1], densely puberulous on both sides, short-puberulous along the margins	1–2 mm long, subulate, short-puberulous at least along the margins
Calyx	ca. 6 × ca. 5 mm, basally fused, 3–4-lobes, sparsely puberulent outside, brown when dried	6–7 × 5–6 mm, 3–5-lobed, inconspicuous lepidote, puberulent at the apex outside, black when dried	4–6 × 3–-5 mm, 2–3-lobed, inconspicuous lepidote or subpuberulous at least in the base, yellowish-brown when dried	4–6 × 3–5 mm, 2–3-lobed, glabrescent or inconspicuous lepidote or subpuberulous at least in the base, brown when dried
Corolla	7–8 mm long, 4 mm wide in the mouth, campanulate-hypocrateriform, lilac inside, lobes 3–4 mm long, minutely (not-glandular) puberulous outside	10–11 mm long, 4 mm wide in the mount, tubular, lilac inside, lobes 3–4 mm long, glandular-lepidote to glandular puberulous inside	10–12 mm long, 5 cm wide in the mount, tubular, lilac inside, lobes ca. 5 mm long, glandular-lepidote to glandular puberulous inside	10–12 mm long, 5 cm wide in the mount, tubular, yellow inside, lobes 4–6 mm long, glandular-lepidote to glandular puberulous inside
Staminode	Absent	Present	Present	Present

[1]In the *S. monachinoi* description, H. Moldenke mentioned that the bract is lanceolate, 2–5 mm long (Moldenke 1949). However, Gentry (2009) quoted that the bract is triangular, 1–2 mm long. Our examination of the type material deposited in COL confirmed the Gentry´s observation.

Key to the species of *Schlegelia*

Modified from Gentry (2009) species indicated with an asterisk (*) are endemic to Colombia.

Careful analysis of the literature and herbarium specimens led us to deem *Schlegelia fuscata* A. H. Gentry and *S. roseiflora* Ducke to be different from *S. parviflora* (Oerst.) Monach (see Table 1). *Schlegelia urbaniana* K. Schum. ex Duss is considered a synonym of *S. axillaris* Griseb., whereas *S. fastigiata* Schery in separated from *S. sulphurea* Diels as a recognizable species.

1 Inflorescences cauliflorous, ramiflorous.....**2**
– Inflorescences terminal or axillary **10**
2 Corolla tubular-campanulate, > 3.5 cm long, ca. 1.1 cm wide at the mouth of the tube, purple or magenta, rarely white; lobes > 5 mm long; fruit ca. 4 cm diam.....**3**
– Corolla tubular or narrowly tubular, 0.8–2.5 cm long, 0.2–0–4 cm wide at the mouth of the tube, white with apex pink, yellow, red or orange; lobes 1–4 mm long; fruit 1–1.5 cm diam. **4**
3 Leaves strongly coriaceous, bullate, usually > 30 cm long; inflorescences a multifloral thyrse, densely contracted, subtended by a conspicuous fascicle of basal bracts ..... ***S. dresslerii* A.H.Gentry (Panamá, Colombia, Ecuador)**
– Leaves subcoriaceous or coriaceous, not bullate, usually < 11 cm long; inflorescences a pauciflorous thyrse; not subtended by basal bracts..... .....***S. nicaraguensis* (México, Mesoamérica, Colombia)**
4 Pseudostipules present; corolla tube white (the lobes apex and calyx pink), pink or yellow; inflorescences a crowded (densely branched) or slightly contracted thyrse.....**5**
– Pseudostipules inconspicuous or absent; corolla (tube and lobes) red, red-orange or red-purple, calyx red or brown; inflorescence a paucifloral thyrse.....**8**
5 Inflorescence a crowded, densely branched thyrse; corolla tube 1.8–2.5 cm long; ovary lepidote **6**
– Inflorescence a slightly or laxer contracted thyrse; corolla 0.8–1.2 cm long; ovary glabrous **7**
6 Pseudostipules subulate; corolla tube yellow .... ***S. sulphurea* (Panamá, Colombia; Ecuador)**
– Pseudostipules lanceolate; corolla tube white (the lobes apex and calyx pink) ..... ***S. fastigiata* (Guatemala, Costa Rica, Panamá, Colombia, Ecuador)**
7 Pseudostipules subulate; leaves 10–25 × 7–20 cm, elliptic or obovate; corolla tube white (the lobes apex and calyx pink) or pink; 1–1.2 cm long..... .....***S. macrophylla* Ducke (Brazil, Colombia, Perú)**
– Pseudostipules lanceolate; leaves 7–11 × 2.5–5 cm, elliptic-oblong or obovate-oblong; corolla tube pink, ca. 0.8 cm long ....***S. roseiflora* (Brazil, French Guiana, Perú)**
8 Leaves densely hirsute along primary and secondary veins on abaxial surface; primary and secondary veins impressed on the adaxial surface..... ..... ***S. hirsuta* A.H.Gentry (Colombia)**
– Leaves glabrous or lepidote on the abaxial surface, primary and secondary veins flat on the adaxial surface.....**9**

9 Leaves chartaceous to subcoriaceous, elliptic to wide-elliptic, two times as long as wide, 15–26 cm long, the base auriculate with rolled up lobes; inflorescence thyrse with reduced partial inflorescences; calyx 5–7 mm long; corolla tube 2–2.5 cm long, red-purple ..... ***S. spruceana* K. Schum. (Brazil, Colombia, Guyana, Venezuela)**

– Leaves coriaceous, narrowly elliptic, more than two times longer than wide, 9–16 cm long, the base rounded or cuneate; inflorescences glomerulate, of several condensed thyrses; calyx 3–5(–6) mm long; corolla tube 1.8–2 cm long, red..... ***S. cauliflora* A.H.Gentry (Brazil, Colombia, Perú)**

10 Inflorescences terminal, 14–40 cm long **11**

– Inflorescences axillary, 0.5–21 cm long **13**

11 Inflorescences with foliaceous bracts, 1–2.5 × 1–2 cm; a species endemic to the Choco Region ..... ***S. darienensis* Sandwith (Colombia, Ecuador, very probably Panamá)**

– Inflorescences with obsolete bracts, 1–2× ca. 1 mm; Amazonian and Guiana Shield species..... **12**

12 Calyx subtruncate, 4–5 mm long; corolla tube ca. 2 mm wide; fruit 1–1.6 cm diam., 1/3 to 1/4 covered by a persistent, subtruncate calyx..... ***S. scandens* Sandwith (Brazil, Colombia, Perú, Suriname, Venezuela)**

– Calyx irregularly 2–3-labiate, 5–9 mm long; corolla tube ca. 3 mm wide; fruit ca. 1 cm diam., with lower 2/3 covered by a persistent, distinctly toothed calyx ..... ***S. violacea* (Brazil, Guianas, Venezuela)**

13 Fruits 3.5–5 cm in diam. **14**

– Fruit 0.5–2.5 cm in diam. **15**

14 Leaves broadly obovate or rarely elliptic, coriaceous, apex rounded, base acute and decurrent on petiole, not lepidote; inflorescences 2.5–3.5 cm long, hispidulous; fruits 4.5–5 cm diam..... ***S. macrocarpa* Lundell (Guatemala)**

– Leaves elliptic-obovate, chartaceous, or subcoriaceous, apex apiculate, base broadly cuneate; sparsely lepidote on both surfaces; inflorescences 1–1.2 cm long, puberulent; fruits 3.5–4 cm diam ..... ***S. nicaraguensis* (México, Mesoamérica, Colombia)**

15 Leaves panduriform (fiddle shape), the base strongly auriculate ..... ***S. pandurata* (Moldenke) A.H.Gentry (Colombia, Ecuador)**

– Leaves elliptic, obovate, elliptic-obovate, wide-ovate, lanceolate, oblanceolate, oblong-ovate or oblong-elliptic, the base cuneate, rounded or abrupt subcordate, slightly or not auriculate..... **16**

16 Corolla golden yellow, lobes 1–2 mm long; calyx toothed, lobes 2–2.5 mm ..... ***S. aurea* Ducke (Brazil)**

– Corolla white with pink tip, lilac, creamy or purple, lobes 3–6 mm long; calyx truncate, subtruncate or slightly toothed, lobes 0.5–1 mm long **17**

17 Inflorescences a crowded, contracted thyrse, densely branched, the branchlets short and conspicuously jointed.... ***S. sulphurea* (Panamá, Colombia, Ecuador)**

– Inflorescences lax thyrses or axillary thyrsic fascicles, 1–several flowered **18**

18 Inflorescences fasciculate or very branched thyrses; corolla campanulate or infundibuliform-campanulate, 5– 6 mm wide toward the end of the tube **19**

– Inflorescences contracted or elongate thyrses, more or less fasciculate (*S. parviflora*) or a lax thyrse; corolla campanulate-hypocrateriform or tubular, 0.4–0.5 cm wide toward the end of the tube..... **23**

19 Inflorescences a very short thyrse; corolla tube 0.6–0.8 cm long **20**
– Inflorescences fasciculate thyrses; corolla tube 1–3.5 cm long.....**21**
20 Leaves 2.5–5 cm wide, elliptic-oblong or obovate-oblong; corolla tube pink, ca. 0.8 cm long ..... ***S. roseiflora*** **(Brazil, French Guiana, Perú)**
– Leaves 7–9 cm wide, widely obovate or widely elliptic; corolla tube white, 5–6 cm long..... ***S. axillaris*** **(Antilles)**
21 Leaves 4–7 cm long,, obovate; corolla 1.3–1.9 cm long ..... ***S. brachyantha*** **Griseb. (Antilles, Colombia, Costa Rica, Panamá, Venezuela)**
– Leaves 10–20 cm long, elliptic, oblong or elliptic-oblong; corolla 2.5–3.5 cm long.....**22**
22 Leaves coriaceous; calyx tubular-campanulate, ca. 1 cm long, green; corolla ca. 3.5 cm long ..... ***S. paraensis*** **Ducke (Brazil, Guianas, Venezuela)**
– Leaves chartaceous; calyx campanulate, 0.4–0.5 cm long, violet; corolla 2.5–3 cm long..... ***S. parasitica*** **(Antilles)**
23 Young branches with conspicuous and dense, raised lenticels; base of leaves abruptly truncate or subcordate; petioles stout, 0.5–1.3 cm long; corolla 1.2–1.3 cm long, white with yellow throat..... ..... ***S. chocoensis*** **A.H.Gentry (Colombia, Ecuador, very probable in Panamá)**
– Young branches with inconspicuous or sparse lenticels; base of leaves rounded, cuneate or nearly so; petioles slender, 1–2.5 cm long; corolla ≤ 1.2 cm long, white or lilac or lavender, the throat lilac or lavender.....**24**
24 Leaves 13–30 cm long; inflorescences a contracted thyrse, the main axis 1–(4)–5 cm long.....**25**
– Leaves 4–22 cm long; inflorescences thyrse or a lax thyrse, the main axis (4)–18 cm long **26**
25 Inflorescences a slightly contracted thyrse; peduncle and pedicel stout and woody ..... ***S. macrophylla*** **Ducke (Brazil, Colombia, Perú)**
– Inflorescences a contracted thyrse, almost often fasciculate; peduncle and pedicel slender and herbaceous..... ***S. parviflora*** **(Mexico, Mesoamerica, Brazil, Colombia, Ecuador, French Guiana, Peru, Venezuela)**
26 Leaves widely-elliptic to elliptic or oblanceolate, brown when dry; inflorescences 1–(4)–5 cm long, narrowly thyrsic, calyx black when dried.....***S. fuscata*** **A.H.Gentry (Nicaragua, Costa Rica, Panamá, Colombia, Ecuador, French Guiana, Venezuela)**
– Leaves lanceolate, lanceolate-elliptic, elliptic, rarely narrowly ovate, or oblanceolate, black- brown or yellowish when dry; inflorescences 4–18 cm long, narrowly thyrsic; calyx brown to yellowish when dry **27**
27 Leaves lanceolate, lanceolate-elliptic, coriaceous, glabrescent or with simple trichomes, densely punctuated on the adaxial surface, black-brown when dry; inflorescences rachis puberulent to sparsely pilose; bracts 2–5 mm long, oblong, ciliate along the margins; calyx sparsely puberulent on outer surface, brown when dry; staminode absent .....***S. longirachis**** **(Colombia)**
– Leaves elliptic, oblanceolate, rarely narrowly ovate, rigid-coriaceous, with lepidote trichomes and sparsely punctuated near base of midrib on both surfaces, yellowish when dry; inflorescences rachis densely hirsute-puberulent, bracts 1–2 mm long, triangular, short- puberulous along the margins; calyx lepidote or subpuberulous at least at the base, yellowish when dry; staminode present ..... ***S. monachinoi*** **(Colombia, Ecuador, Venezuela)**

Acknowledgements

The authors are grateful to Gustavo A. Romero-G. (AMES) and Clemente de Jesús Hernández Peña (MER) for their help locating historical and current literature; to Julio Betancur (COL) for his assistance at COL herbarium; and especially to J. Orlando Rangel-Ch. (COL) for kindly allowing the first author to use his office and laboratory facilities. The authors are also grateful to Liseth Paola Piñeros Urrego for her patience preparing the illustration, to Andrés F. Majin-Ladino and Lucindo Galvis for their assistance in the field. This work would not be possible without the International Plant Names Index (https://www.ipni.org/), JSTOR Global Plants (https://plants.jstor.org/), Biodiversity Heritage Library website (http://www.biodiversitylibrary.org/), The World Checklist of Vascular Plants (WCVP, http://wcvp.science.kew.org/), the online botany collections of the Smithsonian Museum of Natural History (https://naturalhistory.si.edu/research/botany) and Tropicos (http://legacy.tropicos.org/Home.aspx) databases and facilities.

Additional information

Conflict of interest

The authors have declared that no competing interests exist.

Ethical statement

No ethical statement was reported.

Funding

No funding was reported.

Author contributions

Both authors contributed to writing and editing the manuscript.

Author ORCIDs

Gerardo A. Aymard Corredor https://orcid.org/0000-0001-9405-0508
M. Alejandra Jaramillo https://orcid.org/0000-0002-6539-4149

Data availability

All of the data that support the findings of this study are available in the main text.

References

Acevedo-Rodríguez P, Strong MT (2023) Catalogue of Seed Plants of the West Indies. Online version.

Armstrong JE (1985) The delimitation of Bignoniaceae and Scrophulariaceae based on floral anatomy, and the placement of problem genera. American Journal of Botany 72(5): 755–766. https://doi.org/10.1002/j.1537-2197.1985.tb08336.x

Bachman S, Moat J, Hill AW, de laTorre J, Scott B (2011) Supporting red list threat assessments with GeoCAT: Geospatial conservation assessment tool. ZooKeys 150: 117–126. https://doi.org/10.3897/zookeys.150.2109

Bohorquez-Osorio AF, Ulian T, Diazgranados M (2020) Guía de plantas útiles de la Serranía de las Quinchas. Ecología, Economía y Ética, Rutas Turísticas por los Bosques y la Paz. Royal Botanic Gardens, Kew, E3, UK.

Burger WC, Barringer KA (2000). Schlegeliaceae. Fieldiana 41: 69–77.

Endlicher S (1839) Crescentieae. Genera plantarum secundum ordines naturales disposita. Vindobonae, 273 pp.

Fonseca LHM (2021) Combining molecular and geographical data to infer the phylogeny of Lamiales and its dispersal patterns in and out of the tropics. Molecular Phylogenetics and Evolution 164: 107287. https://doi.org/10.1016/j.ympev.2021.107287

Font-Quer P (2001) Diccionario de Botánica. Ediciones Península, Barcelona.

Funk VA, Hollowell TH, Berry PE, Kelloff CL, Alexander S (2007) Checklist of the plants of the Guiana Shield (Venezuela: Amazonas, Bolivar, Delta Amacuro; Guyana, Surinam, French Guiana). Contributions from the United States National Herbarium 55: 1–584.

Galindo-T R, Betancur J, Cadena-M JJ (2003) Estructura y composición florística de cuatro bosques andinos del santuario de flora y fauna Guanentá-alto río Fonce, Cordillera Oriental colombiana. Caldalsia 25: 313–335.

Gentry AH (1973) *Schlegelia* (Bignoniaceae). Flora of Panama. Ann. Missouri Botanical Garden 60: 922–930.

Gentry AH (1977) Bignoniaceae. In: Harling GW, Sparre BB (Eds) Flora of Ecuador. University of Göteborg & Swedish Museum of Natural History, Göteborg & Stockholm, 1–172.

Gentry AH (1980) Bignoniaceae: Part I, (Crescentieae and Tourretieae). Flora Neotropica 25. New York Botanical Garden Press, New York, NY, 1–131.

Gentry AH (1982a) Bignoniaceae. In: Febres ZL de, Steyermark J (Eds) Flora de Venezuela. Instituto Nacional de Parques. Dirección de Investigaciones Biológicas, Caracas, Venezuela, 1–464.

Gentry AH (1982b) Bignoniaceae. Flora of Veracruz 24: 1–222.

Gentry AH (1997) Bignoniaceae. In: Steyermark JA, Berry PE, Yatskievych K, Holst BK (Eds) Flora of the Venezuelan Guyana, Vol. 3, (Araliaceae-Cactaceae). Missouri Botanical Garden Press, Saint Louis, MO, 403–491.

Gentry AH (2001) *Schlegelia* (Bignoniaceae). In: Stevens DW, Ulloa Ulloa C, Pool A, Montiel OM (Eds) Flora de Nicaragua. Monographs in Systematic Botany from the Missouri Botanical Garden 85: 424–425.

Gentry AH (2009) Bignoniaceae. Flora de Colombia No 25. Universidad Nacional de Colombia. Facultad de Ciencias. Instituto de Ciencias Naturales, Bogotá, 462 pp.

Gradstein SR (2016) Schlegeliaceae. Catálogo de plantas y líquenes de Colombia Vol. I., 2393–2394.

IUCN Standards and Petitions Committee (2022) 1 Guidelines for Using the IUCN Red List Categories and Criteria.

Liu B, Tan YH, Liu S, Olmstead RG, Min DZ, Chen ZD, Joshee N, Vaidya BN, Chung RCK, Li B (2020) Phylogenetic relationships of *Cyrtandromoea* and *Wightia* revisited: A new tribe in Phrymaceae and a new family in Lamiales. Journal of Systematics and Evolution 58(1): 1–17. https://doi.org/10.1111/jse.12513

Miquel FAG (1844) Bemerkunger über *Schlegelia* und über die Verwandtschaftwn der Crecentieen Endl. Botanische Zeitung (Berlin) 2: 785–789.

Moldenke HN (1949) New and Noteworthy Plants VIII. Phytologia 3: 106–121. https://doi.org/10.5962/bhl.part.10091

Morales JF (2015) Schlegeliaceae. Monographs in Systematic Botany from the Missouri Botanical Garden 131: 143–148.

Olmstead RG, Zjhra ML, Lohmann LG, Grose SO, Eckert AJ (2009) A molecular phylogeny and classification of Bignoniaceae. American Journal of Botany 96(9): 1731–1743. https://doi.org/10.3732/ajb.0900004

Pulle A (1906) An enumeration of the vascular plants known from Suriname, together with their distribution and synonymy: 5. The Netherlands, 614 pp. https://doi.org/10.5962/bhl.title.57150

Restrepo IC, Aldana AM, Stevenson PR (2021) Forest dynamics in different scenarios: Selective logging in the middle Magdalena (Colombia). Sustainable Forestry 4(2): 72. https://doi.org/10.24294/sf.v4i2.1613

Reveal JL (1995) Newly required suprageneric names in vascular plants. Phytologia 79: 68–76. http://biostor.org/reference/62999

Rivers MC, Taylor L, Brummitt NA, Meagher TR, Roberts DL, Lughadha EMN (2011) How many herbarium specimens are needed to detect threatened species? Biological Conservation 144(10): 2541–2547. https://doi.org/10.1016/j.biocon.2011.07.014

Salgado J, Shurin JB, Vélez MI, Link A, Lopera-Congote L, González-Arango C, Jaramillo F, Åhlén I, de Luna G (2022) Causes and consequences of recent degradation of the Magdalena River basin, Colombia. Limnology and Oceanography Letters 7(6): 451–465. https://doi.org/10.1002/lol2.10272

Spangler RE, Olmstead RG (1999) Phylogenetic analysis of Bignoniaceae based on the cpDNA gene sequences rbcL and ndhF. Annals of the Missouri Botanical Garden 86(1): 33–46. https://doi.org/10.2307/2666216

Stiles F, Bohórquez CI (2000) Evaluando el estado de la biodiversidad: El caso de la avifauna de La Serranía De Las Quinchas, Boyacá, Colombia. Caldasia 22: 61–92.

Thiers B (2019) Index Herbariorum A global directory of public herbaria and associated staff. http://sweetgum.nybg.org/ih/

Verspagen N, Erkens RHJ (2022) A method for making Red List assessments with herbarium data and distribution models for species-rich plant taxa: Lessons from the Neotropical genus *Guatteria* (Annonaceae). Plant, People and Planet: 1–11. https://doi.org/10.1002/ppp3.10309

Villaseñor Ríos JL (2016) Checklist of the native vascular plants of Mexico. Catálogo de las plantas vasculares nativas de México. Revista Mexicana de Biodiversidad 87(3): 559–902. https://doi.org/10.1016/j.rmb.2016.06.017